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## ABSTRACT OF THE INVENTION

A method and system for predicting the class membership of a record where information for one or more variables in the record is missing. Multiple classification trees are generated. A first classification tree is computed using a substantially complete set of information for all of the variables. Other classification trees are computed for different subsets of the variables. Variables are selected for inclusion in a subset based on how strongly they influence the prediction of class membership. The first classification tree (based on the substantially complete set of information) is applied to a record with missing information. If missing information is needed by this tree in order to classify the record, another classification tree that is not based on the missing variable is selected. The class membership for a record with information missing is predicted more accurately without substantially increasing the complexity of the prediction.